

Trend Study 25R-1-04

Study site name: Gooseberry.

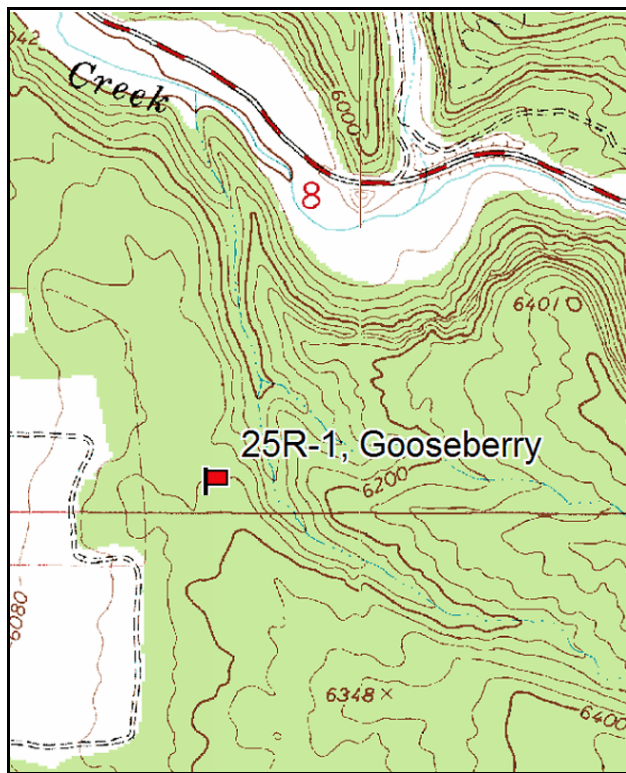
Vegetation type: Pinyon-Juniper.

Compass bearing: frequency baseline 140 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

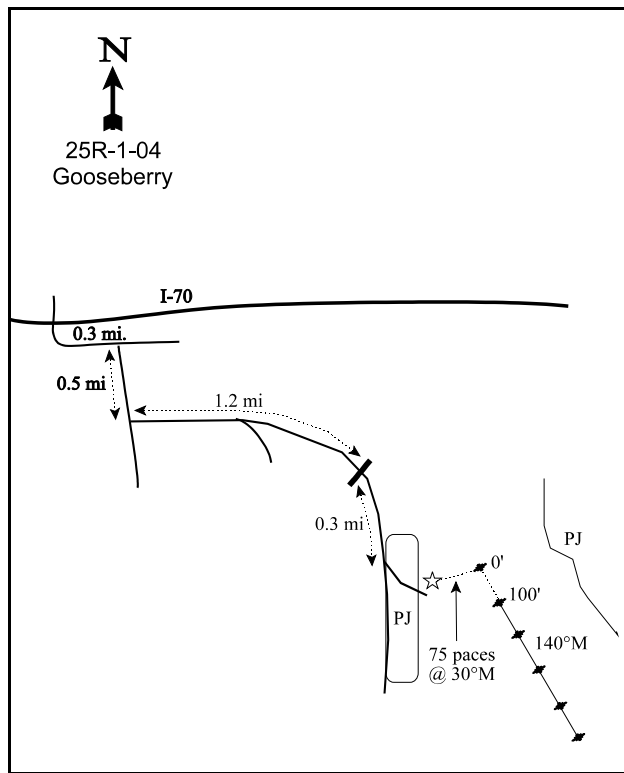
LOCATION DESCRIPTION

Take exit #61 from I-70 and turn south. Go 0.3 miles to a right turn. Take this turn and go 0.5 miles to a left (east) turn. Take this turn and go 0.6 miles to a fork. Take the left fork and go 0.6 miles to a gate. Go another 0.3 miles past the gate to a small road leading into the chaining. The half-high witness post is located inside the chaining where the road ends. The browse tag for the transect is #150.



Map name: Gooseberry Creek.

Township 22 S, Range 2 E, Section 32



Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4306060 N, 438211 E

DISCUSSION

Gooseberry - Trend Study No. 25R-1

The Gooseberry study site was established in 1997 prior to being chained in the fall of 1997. The chaining was done to improve wildlife habitat to try and prevent deer from going onto nearby alfalfa fields to the west. Prior to treatment, the site was dominated by pinyon and juniper situated on a northwest aspect at an elevation of 6,200 feet with a 7% slope. It presently supports a few heavily grazed seeded grasses and forbs. Pellet group data from 1997 estimated 13 deer (33 ddu/ha) and 18 elk days use/acre (45 edu/ha). Pellet group data from 2004 estimated 40 cows days use/acre (98 cdu/ha). Cow use was from late spring to early summer.

The soil is a light brown loam texture and has a neutral pH (7.1). Organic matter is moderately high at 4.0%. Rock is prevalent on the surface and throughout the profile, resulting in an estimated effective rooting depth of just under 11 inches. The rocks have a calcium carbonate coating and a calcium carbonate layer was found in the soil at about 11 inches. Bare ground was relatively low before the chaining at about 20% in and increased to 46% in 2004. Litter before the chaining made up 62% of the ground cover and dropped to 30% by 2004. Typically litter is greater after a chaining and the difference is the slash from the chaining was piled into clumps. Erosion is minimal due to the heavily armored surface from pavement and rock. The erosion condition class determined soil movement as stable in 2004.

Pinyon and juniper was the dominate browse species before the chaining and accounted for 68% of the total vegetation cover. Before the chaining, pinyon was estimated at 104 trees/acre with an average diameter of 5.4 inches. Juniper was estimated at 112 trees/acre with an average diameter of 19.1 inches. There is still good cover of pinyon and juniper surrounding the site. No preferred browse was observed before or after the chaining and only broom snakeweed was found after the chaining. The high percentage of bare ground creates the potential for broom snakeweed to expand rapidly.

Prior to the chaining, the herbaceous understory was dominated by cheatgrass and a few native grasses such as Indian ricegrass and bottlebrush squirreltail. Forbs consisted of a few small annual species. The herbaceous understory accounted for 27% of the total vegetation cover before the chaining and increased to 93% after the chaining. Perennial grasses such as crested wheatgrass and intermediate wheatgrass established well after the chaining, although were heavily utilized by cows earlier in the summer. Cheatgrass was still found on the site, but decreased significantly from 1997 observations. Alfalfa is the dominate forb and makes up 27% of the total vegetation cover.

The original goal of this project was to keep deer off of the alfalfa fields by creating better habitat in the pinyon/juniper zone. Unfortunately, pellet group data suggest that no deer or elk are using the site. It would appear that there is some conflict with management if the area was treated to create habitat for deer, but cows are utilizing all the forage. Continued heavy livestock use will continue to decrease the value of this site.

2004 TREND ASSESSMENT

Trend for soil is down. Percent bare ground increased from 20% in 1997 to 46% in 2004. Litter from chaining was collected in large piles, which is not as effective at reducing erosion or creating safe sites for seed establishment. Trend for browse species is slightly down. No preferred browse species are found on this site and with broom snakeweed on the site it may rapidly become a weed problem. Trend for herbaceous understory is up. Perennial grasses and forbs increased significantly and provide protection for the soil. Heavy use by cows was observed, and if continued may have detrimental effects on this site. The Desirable Components Index rated this site as very poor with a score of 27 due to no preferred shrub cover and moderate to good perennial grass and forb cover.

TREND ASSESSMENT

soil - down (1)

browse - slightly down (2)

herbaceous understory - up (5)

1997 winter range condition (DC Index) - 6 (very poor) P-J chaining type

2004 winter range condition (DC Index) - 27 (very poor) P-J chaining type

HERBACEOUS TRENDS --

Management unit 25R, Study no: 1

T y p e	Species	Nested Frequency		Average Cover %	
		'97	'04	'97	'04
G	Agropyron cristatum	a ⁻	b ¹³⁵	-	4.57
G	Agropyron intermedium	a ⁻	b ¹¹²	-	3.18
G	Bromus tectorum (a)	b ²³⁵	a ¹⁰⁰	1.55	.82
G	Carex spp.	b ¹⁵	a ⁻	.15	-
G	Dactylis glomerata	a ⁻	b ²¹	-	.16
G	Oryzopsis hymenoides	b ⁵¹	a ⁴	.66	.05
G	Poa fendleriana	-	-	-	.00
G	Poa pratensis	-	-	-	.00
G	Poa secunda	25	38	.14	.58
G	Sitanion hystrix	b ²⁷	a ³	.18	.03
G	Vulpia octoflora (a)	b ¹⁹	a ⁻	.03	-
Total for Annual Grasses		254	100	1.59	0.81
Total for Perennial Grasses		118	313	1.14	8.59
Total for Grasses		372	413	2.74	9.40
F	Alyssum alyssoides (a)	b ²³⁵	a ⁸⁴	1.11	.24
F	Chenopodium fremontii (a)	-	7	-	.04
F	Cirsium spp.	-	1	-	.15
F	Cryptantha spp.	25	17	.53	.20
F	Descurainia pinnata (a)	a ⁻	b ¹⁴	-	.14
F	Eriogonum cernuum (a)	5	-	.01	-
F	Erigeron pumilus	-	3	-	.00
F	Gilia spp. (a)	a ⁻	b ¹⁹	-	.08
F	Lappula occidentalis (a)	7	-	.01	-
F	Leucelene ericoides	7	-	.07	-
F	Medicago sativa	-	148	-	4.19
F	Phlox austromontana	-	2	-	.03
F	Physaria spp.	-	3	-	.00
F	Ranunculus testiculatus (a)	a ⁵¹	b ⁷⁸	.14	.49
F	Sanguisorba minor	-	25	-	.46

T y p e	Species	Nested Frequency		Average Cover %	
		'97	'04	'97	'04
F	Senecio integerrimus	-	2	-	.00
F	Senecio multilobatus	_a -	_b 28	-	.10
F	Streptanthus cordatus	-	2	-	.00
Total for Annual Forbs		298	202	1.28	1.00
Total for Perennial Forbs		32	231	0.60	5.17
Total for Forbs		330	433	1.88	6.17

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --

Management unit 25R, Study no: 1

T y p e	Species	Strip Frequency		Average Cover %	
		'97	'04	'97	'04
B	Cercocarpus montanus	2	0	-	-
B	Gutierrezia sarothrae	15	28	.25	1.08
B	Juniperus osteosperma	2	0	5.34	-
B	Opuntia spp.	26	0	.47	-
B	Pinus edulis	4	1	6.31	-
Total for Browse		49	29	12.37	1.08

CANOPY COVER, LINE INTERCEPT --

Management unit 25R, Study no: 1

Species	Percent Cover	
	'97	'04
Gutierrezia sarothrae	-	2.26
Juniperus osteosperma	14.00	-
Pinus edulis	12.39	-

BASIC COVER --

Management unit 25R, Study no: 1

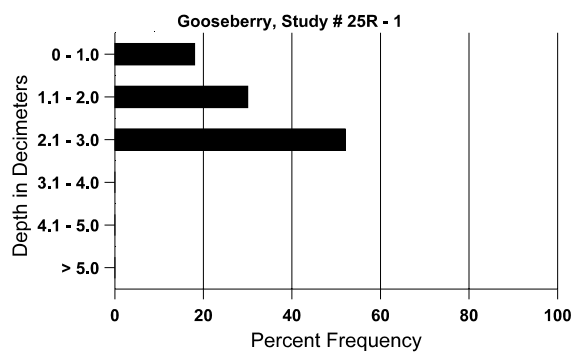
Cover Type	Average Cover %	
	'97	'04
Vegetation	18.26	14.71
Rock	7.30	6.22
Pavement	5.50	9.72
Litter	61.62	29.93
Cryptogams	.65	.18
Bare Ground	20.44	46.09

SOIL ANALYSIS DATA --

Management unit 25R, Study no: 1, Study Name: Gooseberry

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	ds/m
10.9	54.0 (14.1)	7.1	38.0	35.4	26.6	4.0	16.1	192.0	2.9

Stoniness Index



PELLET GROUP DATA --

Management unit 25R, Study no: 1

Type	Quadrat Frequency		Days use per acre (ha)
	'97	'04	
Rabbit	9	49	-
Elk	2	2	-
Deer	9	1	-
Cattle	-	10	40 (98)

BROWSE CHARACTERISTICS --

Management unit 25R, Study no: 1

		Age class distribution (plants per acre)					Utilization					
Y e a r	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
Cercocarpus montanus												
97	40	-	-	40	-	-	0	100	-	-	0	21/21
04	0	-	-	-	-	-	0	0	-	-	0	19/16
Gutierrezia sarothrae												
97	1140	20	60	1080	-	-	0	0	0	-	4	10/10
04	1280	-	20	1220	40	60	0	0	3	-	2	9/11
Juniperus osteosperma												
97	40	-	-	40	-	-	0	0	-	-	0	-/-
04	0	-	-	-	-	-	0	0	-	-	0	-/-
Opuntia spp.												
97	980	-	-	960	20	-	0	0	2	2	2	3/5
04	0	-	-	-	-	-	0	0	0	-	0	-/-
Pinus edulis												
97	80	40	-	80	-	-	0	0	-	-	0	-/-
04	20	-	20	-	-	-	0	0	-	-	0	-/-